Proposal Reviews

#246: WHITE SLOUGH RESTORATION

Vallejo Sanitation and Flood Control District

Final Selection Panel Review	
Initial Selection Panel Review	
Research and Restoration Technical Panel Review	
Bay Regional Review	
External Scientific Review	#1 #2 #3 #4
Environmental Compliance	
Budget	

Final Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Final Selection Panel Review

Proposal Number: 246

Applicant Organization: Vallejo Sanitation and Flood Control District

Proposal Title: WHITE SLOUGH RESTORATION

Please provide an overall evaluation rating.

Fund	
As Is	**-**
In Part	**-**
With Conditions	**-**
Consider as Directed Action	**-**
Not Recommended	**X**

Amount: **$0**

Conditions, if any, of approval (if there are no conditions, please put "None"):

None

Provide a brief explanation of your rating:

The Selection Panel is not compelled to alter its initial recommendation not to fund this project - despite the Department of Fish and Game' letter of support that points to potential benefits to the ecosystem and MSCS species. DFG's letter was written prior to the panel's initial recommendation. The Panel's concerns regarding the inadequacy of the proposal still exist. The proposal lacks a conceptual model, hypotheses, and information regarding how monitoring of tidal effects would proceed. It also lacks the criteria to support an adaptive management approach and performance measures for evaluating system response to altering tidal management.

Initial Selection Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Initial Selection Panel Review

Proposal Number: 246

Applicant Organization: Vallejo Sanitation and Flood Control District

Proposal Title: WHITE SLOUGH RESTORATION

Please provide an overall evaluation rating.

Explanation of Recommendation Categories: Fund

- **As Is** (a proposal recommended for funding as proposed)
- **In Part** (a proposal for which partial funding is recommended for selected project phases or components)
- **With Conditions** (a proposal for which funds are recommended if the applicant contractually agrees to meet the specified conditions)

Consider as Directed Action in Annual Workplan (a proposal addressing a high priority action that requires some revision followed by additional review prior to being recommended for funding)
Not Recommended (a proposal not currently recommended for funding-after revision may be considered in the future)

Note on "Amount":

For proposals recommended as Fund As Is, Fund In Part or Fund With Conditions, the dollar amount is the amount recommended by the Selection Panel.

For proposals recommended as Consider as Directed Action in Annual Workplan, the dollar amount is the amount requested by the applicant(s).

Fund	
As Is	**-**
In Part	**-**
With Conditions	**-**
Consider as Directed Action	**-**
Not Recommended	**X**

Amount: **$0**

Conditions, if any, of approval (if there are no conditions, please put "None"):

None

Provide a brief explanation of your rating:

This is a proposal to monitor tidal effects of operation of the Rte. 37 tidal gates and to regrade the levee as a means to providing habitat for native aquatic species. The technical and regional reviews were mixed. While reviewers appreciated the need to monitor tidal effects, the proposal lacked a conceptual model and hypotheses, a list of tasks associated with monitoring, criteria to support adaptive management, and performance measures. Specifically, there is no mechanism presented for how data would be synthesized nor is there a link to how ecological or system responses (to the proposed tidal restoration) will be measured.

Research and Restoration Technical Panel Review:

CALFED Bay-Delta 2002 ERP PSP
Research and Restoration Technical Panel Review Form

Proposal Number: 246

Applicant Organization: Vallejo Sanitation and Flood Control District

Proposal Title: WHITE SLOUGH RESTORATION

Review:

Please provide an overall evaluation summary rating:

Superior: outstanding in all respects;
Above Average: Quality proposal, medium or high regional value, and no significant administrative concerns;
Adequate: No serious deficiencies, no significant regional impediments, and no significant administrative concerns;
Not Recommended: Serious deficiencies, significant regional impediments or significant administrative concerns.

Overall Evaluation Summary Rating	Provide a brief explanation of your summary rating
-Superior	**Both the panel and outside reviews were mixed regarding support of this proposal. Most reviewers appreciated both aspects of this project (though not necessarily in the same proposal), which include monitoring for adaptive management of the Rte 37 tide gates and the re-grade of the levee to improve support native species. Those reviewers who assigned lower ratings were clear in that the applicant had not performed a literature review to establish a conceptual model and a clear set of hypotheses, monitoring tasks, and criteria to support adaptive management. Furthermore, specifics regarding the Rte 37 design and flood control management were not included. Without a conceptual model or specifics about the Rte 37 product/management, there were no clear expectations and little with which to judge the work in the proposal. These significant deficiencies led to a low summary rating by the panel. The panel encourages the applicant to resubmit two separate proposals that follow the next years PSP more closely.**
-Above average	
XAdequate	
-Not recommended	

1. **Goals and Justification.** Does the proposal present a clear statement of goals, objectives and hypotheses? Does the proposal present a clear justification and conceptual model for the project?

   Goals, objectives and hypotheses are clearly stated and consistent with CALFED and White Slough SAP goals. The hypotheses are particularly well developed, though I do not necessarily agree with their strategy for site location based on the hypotheses.

No conceptual model is presented; yet enough should be known already about the site at this point to develop and present a conceptual model. There is no explanation of how the proponents believe the flood management will impact the system.

2. **Likelihood of Success (Approach, Feasibility, Capabilities and Performance Measures).** Is the project likely to succeed based on the approach, feasibility and project team capabilities? Are the proposed performance measures adequate for measuring the project's success?

   The applicants are trying to revive an ecosystem that has apparaently crashed due to human impacts. Mitigation planning is underway (and will be paid by others), and this proposal will establish a monitoring plan to assess this work. As a second unrelated componenet, improvement of habitats along a road causeway will be experimentally tested.

   To support the approach in their proposal, the applicants need to collect information regarding the impacts and benefits from tidal restoration and link benefits to water quality and at risk species that might accrue from tidal restoration. Will the preliminary hydrologic and sediment models be based on preexisting models (which ones?), or will new models be created? It is not clear how the data will be synthesized effectively to support adaptive management of the tide gates. For example, macroinvertebrate surveys will consist of three subsamples taken from . . . several data collection points. Why not revisit the 12 sites where the hydrology, sediment and water quality data are collected? In the second portion of the work planned here, the applicants will redesign the most recent causeway and examine the results with respect to native and invasive species.

   From the information presented, it is unclear whether the route 37 work will restore tides to promote the return of intertidal vegetation. Has the system subsided too much? Will the tidal range produced by the construction be adequate to support emergent marsh vegetation? We presume the project is an effort to answer some of these questions, but the specifics regarding the scope and management of the gates is essential, yet missing. Also, the timing of the ecological responses is not taken into account in the development of the project (useful information may require years following tidal improvements).

   No clear mechanism/approach is presented for data synthesis regarding tidal restoration (hydrology, water quality, sediment dynamics, vegetation & fauna) that would drive adaptive management or a predictive model.

   This team probably has the capabilities and infrastructure to complete the work, but the deficiencies in the proposal do not lend confidence or make that clear.

   The proposal includes no performance measures that will critically examine the ecological or system responses to the proposed tidal restoration. Both overview and detail are lacking in the tidal response portion. The levee retrofit experiment addresses performance measures by listing potential indicators, which helps the reader, but no specific information is supplied.

3. **Outcomes and Products.** Will the project advance the state of scientific knowledge in general and/or make an important contribution to the state of knowledge of the Bay-Delta Watershed? For restoration proposals, is the project likely to contribute to ecosystem restoration or species recoveries in a significant way? Will the project produce products useful to decision-makers and scientists?

   No coordination of monitoring methods is considered, which would help make results more useful to other projects. The results of the levee work may produce information that has great use and applicability to other projects. However, some information regarding support of native

species through better causeway design may already exist. The proposal would have benefited from a short literature review on this topic (a paragraph with references).

4. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   Costs appears reasonable, approximately $670,000 is requested which does not include in kind services from the applicant (flood control district). However, these costs may not be able to support the controls needed to develop and execute an appropriate experimental design (i.e., replication of levee treatments), or to synthesize monitoring results.

5. **Regional Review.** How did the regional panel(s) rank the proposal (High, Medium, Low)? Did the regional panel(s) identify significant benefits (regional priorities, linkages with other activities, local involvement) or impediments (local constraints, conflicts with other activities, lack of local involvement) to this proposal? What were they?

   The Bay Regional Review panel ranked this proposal LOW because they believe that the muted tides planned for the site will continue to constrain restoration so much as to preclude achievement of restoration priorities. Further, the panel indicated that there is sufficient information from other levees and projects that there is little need to study various levee treatments in support of native species.

6. **Administrative Review.** Were there significant concerns about the proposal with regard to the prior performance, environmental compliance and budget administrative reviews? What were they?

   There were no prior performance reviews for this applicant. The environmental compliance indicated that a 2081 permit for incidental take may be required from CDFG, but this did not impair feasibility. The budget review had no issues or problems with the budget.

Miscellaneous comments:

None

Bay Regional Review:

Proposal Number: 246

Applicant Organization: Vallejo Sanitation and Flood Control District

Proposal Title: WHITE SLOUGH RESTORATION

Overall Ranking: **X**Low **-**Medium **-**High

Provide a brief summary explanation of the committee's ranking:

The muted tidal regime is the largest constraint to restoration, and consequently it appears that the project cannot satisfactorily achieve the restoration priorities applicable to the region.

1. Is the project feasible based on local constraints?

   XYes **-**No

   How?

   Yes Phases 1 & 2. Phase 1 research & demo project Phase 2 restoration plan (Phase 3 funding not requested restoration implementation & monitoring) Comment Phase 1 has some identified difficulties (i.e. potentially hazardous spoils), but these are common to many projects and can be overcome

2. Does the project pursue the restoration priorities applicable to the region as outlined in the PSP?

   -Yes **X**No

   How?

   The forthcoming restored tidal regime is going to be an extremely constrained, muted tidal regime. This artificial tide regime will be the largest constraint to restoration, and will be the dominant controlling factor for any restoration opportunities. Sadly, the restoration opportunities are so limited by this controlling factor that the project cannot satisfactorily achieve the restoration priorities applicable to the region (BR-1: Restore critical San Pablo Bay tidal marshes).

3. Is the project adequately linked with other restoration activities in the region, such as ongoing implementation projects and regional planning efforts?

   XYes **-**No

   How?

   Yes It is near to other projects, as well as a component of the White Slough Planning Area.

4. Does the project adequately involve local people and institutions?

   XYes **-**No

   How?

   Yes Public education component in this project; Letters of support from both agencies and NGO environmental groups

Other Comments:

1) Properties near the site are undergoing rapid development (e.g., Serano Drive). There may be funding opportunities related to this development. 2) Lake Merritts wetlands restoration project may provide valuable data for a muted tidal regime. Contact Coastal Conservancy (funder), City of Oakland (project proponent), or Lake Merritt Institute (NGO environmental group) 3) Somewhat weak performance measures. 4) There is sufficient information from other levees and projects that there is little need to study various levee treatments.

External Scientific: #1

Research and Restoration External Scientific Review Form

Proposal Number: **246**

Applicant Organization: **Vallejo Sanitation and Flood Control District**

Proposal Title: **WHITE SLOUGH RESTORATION**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

NONE

Review:

Please provide an overall evaluation summary rating:

<u>Excellent:</u> outstanding in all respects;
<u>Good:</u> quality but some deficiencies;
<u>Poor:</u> serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**I like both aspects of this project, which include monitoring for adaptive management of the Rte 37 tide gates and the re-grade of the levee to support native species. However, the authors have not included any specifics regarding the Rte 37 design or flood control management. Without a conceptual model or specifics about the Rte 37 product/management, there are no clear expectations and little with which to judge the work (or the proposal). There are significant deficiencies with the integration and execution of activities, how they relate to the conceptual modeling, performance measures and criteria that would for the basis for adaptive management.**
-Good	
XPoor	

1. **<u>Goals.</u>** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   Goals, objectives and hypotheses are clearly stated and they are consistent with CALFED and White Slough SAP goals. The hypotheses are particularly well developed, though I do not necessarily agree with their strategy for site location based on the hypotheses.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   No conceptual model is presented; yet at least this much should be known already about the site at this point. There is no explanation of how the proponents believe the flood management would impact the system.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The applicants are trying to revive an ecosystem that has apparently crashed due to human impacts. Mitigation planning is underway (and will be paid by others), and this proposal will establish a monitoring plan to assess this work. As a second, fairly unrelated portion of this project, habitats improvement along causeways will be experimentally tested. To support the approach, the applicants need to collect information regarding the impacts and benefits from tidal restoration and link benefits to water quality and at risk species to tidal restoration. Will the preliminary hydrologic and sediment models be based on preexisting models (which ones?), or will new models be created? It is not clear how the data will be synthesized effectively to support adaptive management of the tide gates. For example, macroinvertebrate surveys will consist of three subsamples taken from . . . several data collection points. Why not the 12 sites where the hydrology, sediment and water quality data are collected? The second portion of the project has a straightforward and practical approach. The applicants plan to reconfigure sections of the most recent causeway as an experiment and examine the results with respect to native and invasive species.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   From the information presented, it is unclear whether the Route 37 work will restore tides to promote the return of intertidal vegetation, or if the system has subsided too much. We also do not know if the tidal range produced by the construction will be adequate to support emergent marsh vegetation. I suppose the project is an effort to answer some of these questions, but the specifics regarding the scope (size, etc.) and management of the gates is essential, yet missing. Also, the timing of the ecological responses is not taken into account in the development of the project. Phase II, pictured in Figure 2, may not provide useful information until ten years following tidal improvements. No clear mechanism/approach is presented for data synthesis regarding tidal restoration (hydrology, water quality, sediment dynamics, vegetation and fauna) that could drive adaptive management or a predictive model.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   The proposal includes no performance measures that will critically examine the ecological or system responses to the proposed tidal restoration. Both overview and detail are lacking. The levee retrofit experiment addresses performance measures by listing potential indicators, which helps the reviewer, but no specific information is supplied.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   No coordination of monitoring methods is considered, which would help make results more useful to other projects. The results of the levee reconfiguration experiment will likely produce information that has great use and applicability to other projects. The monitoring associated with the muted tidal regime is unlikely to produce more than a case study, unless monitoring uses standardized methods and integrates components for a useful synthesis.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   This team probably has the capabilities and infrastructure to complete the work, but the deficiencies in the proposal do not lend confidence or make that clear.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   Project costs appear reasonable, but may not be able to support the controls needed to develop and execute an appropriate experimental design (i.e., replication of levee treatments), or to synthesize monitoring results.

Miscellaneous comments:

External Scientific: #2

Research and Restoration External Scientific Review Form

Proposal Number: **246**

Applicant Organization: **Vallejo Sanitation and Flood Control District**

Proposal Title: **WHITE SLOUGH RESTORATION**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

<u>Excellent:</u> outstanding in all respects;
<u>Good:</u> quality but some deficiencies;
<u>Poor:</u> serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
-Excellent	**As I said in my review, I think that the levee experiment has the greatest potential to generate information that is useful to natural resource managers and scientists involved in estuarine and wetland restoration projects. The monitoring portion of the project is weak in that it lacks specific performance criteria to gauge the success/failure of the restoration. Also, more pre-restoration monitoring (than sampling four times per year for one year as is currently proposed) is needed to establish baseline condition. I recommend that the PI's review the published literature concerning estuarine and marsh restoration, identify specific, quantifiable performance criteria that can be used to evaluate the response of White Slough to restoration of tidal flows then revise and resubmit the proposal the next go round.**
XGood	
-Poor	

1. **<u>Goals.</u>** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The project goals are clearly stated: (1) pre- and post-restoration monitoring of the White Slough following installation of larger culverts to improve tidal flushing, (2) efficacy of levee treatments (reduced elevation & slope, soil amendments, revegetation) to restore wetland & riparian habitat, (3) development of educational/recreational facilities on the site, (4)

development of a basin-wide conceptual restoration plan and (5) implementation of the plan.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   The proposal lacks a conceptual model that describes the ecosystem response to improved tidal flushing. Generalized hypotheses (for example, no response, positive response, negative response to improved flushing) are presented but the investigators dont seem to have much of an idea as to how the slough ecosystem will respond to improved flushing. The investigators should undertake a thorough review of the published literature to gain an understanding of estuarine ecosystem response to restoration of tidal flows. Numerous studies from the northeastern U.S. have evaluated the response of estuarine marshes to tidal restoration following removal of levees and tides gates. On a positive note, I like the manipulative study utilizing different levee treatments (reduced slope & height, revegetation, soil amendments) to facilitate establishment of wetland and riparian habitat. Again, the investigators should peruse the published literature to see how similar experiments fared.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   Pre- and post-restoration monitoring consists of measurements related to water chemistry, sediment and biota at 10-12 locations seasonally for one year. Most variables are related to water quality and sediment transport. I dont think that one year of seasonal measurements at the frequency proposed is going to be sufficient to detect changes in ecosystem structure & function in response to tidal restoration. More frequent pre-restoration sampling is needed. Wildlife, fish, macroinvertebrate and wildlife surveys are proposed but sampling protocols, as presented, are vague. Macroinvertebrate sampling is discussed in some detail. But, collection of three samples (at an undetermined number of locations) is not enough to separate sampling variability from treatment (restoration) variability. The PIs should consider adding an estuarine biologist/ecologist to the project to beef up this component of the monitoring. I like the levee experiment. I think that this portion of the project has the greatest potential to generate useful information to natural resource managers involved in restoration projects. Again, the PIs need to undertake a thorough review of the published literature to see what has been done in this area.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The approach is technically feasible. Caltrans will install the enlarged culverts & tides gates as part of the highway 37 upgrade. It is not clear from the proposal though, just how the new configuration will affect the hydrology of the slough. For example, what is the hydrology of the slough at presentis it isolated from the tides? And, after restoration, what tidal regime will be achieved.diurnal inundation? How much tidal amplitude is expected following restoration? This information should be in the proposal. As discussed above (see Approach), I have reservations as to whether the monitoring program will be able to document changes in ecosystem structure/function in response to restoration of tidal flows. As it stands now, the monitoring program is broad in terms of the number of variables to be measured but shallow in terms of the intensity/frequency of measurements. The PIs should consider monitoring a half dozen variables that serve as indices of ecosystem structure and function (see Performance Measures) and they should make more frequent/intensive measurements than is proposed at present.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   A weakness of the proposal is the lack of specific, quantifiable performance measures to gauge the success/failure of the planned restoration. The PIs should pare down their list of variables to monitor to 5-10 variables that can serve indices of estuarine/wetland ecosystem structure and function. For example, one index might be percent cover of estuarine wetland vegetation, like Spartina foliosa (if it grows naturally in this part of the bay) or some other wetland plant species native and common to the area. Possible hydrologic indices might include tidal amplitude and salinity. Benthic invertebrates might serve as an index of the food web & estuarine life support functions. The PIs need to spend some time thinking about this and reviewing the published literature (see Justification).

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   The levee experiment has potential to generate products that can be applied to other restoration projects. I dont think the monitoring program will produce much transferable information without better defined performance measures and more intensive measurements to gauge performance than the ones currently proposed. More explanation of the proposed educational and recreational facilities, which are mentioned briefly in the proposal, is needed.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   I am not familiar with the track record of the applicants.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The budget seems reasonable although an awful lot of money is budgeted for presentations & reports ($11,000 in year 1, for example) and meetings ($13,800 in year 1). No overhead is charged though. It would be nice to see how the money is broken out between the various consulting and academic groups.

Miscellaneous comments:

External Scientific: #3

Research and Restoration External Scientific Review Form

Proposal Number: **246**

Applicant Organization: **Vallejo Sanitation and Flood Control District**

Proposal Title: **WHITE SLOUGH RESTORATION**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

<u>Excellent:</u> outstanding in all respects;
<u>Good:</u> quality but some deficiencies;
<u>Poor:</u> serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
XExcellent	**The measures, goals, objectives and hypothesis are clearly stated. The team has good experience. Good letters of support.**
-Good	
-Poor	

1. **<u>Goals.</u>** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   The project goals, objectives and hypotheses are very clearly stated.

2. **<u>Justification.</u>** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   No conceptual model was provided in the proposal. How will flood management impact the ecosystem?

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The study clearly outlines the tasks to be conducted, sampling locations are shown in Figure 3. Methods include description of equipment, methods to be followed, and that QA/QC plans will be developed prior to sampling.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   The approach appears feasible, however, outside my specific area of expertise to evaluate fully.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   Measures are clearly outlined in Table 1.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   Expected products will be deliverables, information transfers, and on the ground implementation and each are clearly outlined.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   The team has adequate experience as a collective whole.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   Cost sharing by the District.

Miscellaneous comments:

Good and balanced letters of support are provided in the proposal.

External Scientific: #4

Research and Restoration External Scientific Review Form

Proposal Number: **246**

Applicant Organization: **Vallejo Sanitation and Flood Control District**

Proposal Title: **WHITE SLOUGH RESTORATION**

Conflict of Interest Statements:
I have no financial interest in this proposal.
XCorrect
-Incorrect

In the blank below please explain any connection to proposal, to applicant, co-applicant or subcontractor or to submitting institution (write "none" if no connection):

none

Review:

Please provide an overall evaluation summary rating:

<u>Excellent:</u> outstanding in all respects;
<u>Good:</u> quality but some deficiencies;
<u>Poor:</u> serious deficiencies.

Overall Evaluation Summary Rating	**Provide a brief explanation of your summary rating**
XExcellent	**Overall, the goals of the project are clear and the objectives appropriate to address the stated goals. The proposed work will provide valuable information on limited restoration of tidal flow to an impounded marsh, an experimental approach to evaluate levee restoration, and tangible public education benefits. The approach is well designed and appropriate for meeting the multiple objectives of the proposed work. The work plan is reasonable and feasible as designed. The proposed work appears to have the appropriate performance measures built into the restoration and education components. The project team is qualified to do the work and the budget is reasonable for such an ambitious project.**
-Good	
-Poor	

1. **<u>Goals.</u>** Are the goals, objectives and hypotheses clearly stated and internally consistent? Is the concept timely and important?

   Generally, the goals of the project are clearly stated and described in the Goals and Objectives section of the proposals Problem Statement. The project appears to have five main goals: 1) fulfill CALFED goals and the public access and wetland enhancement elements of the SAP; 2) increase habitat function, as well as values, and At-risk species population viability, by restoring natural tidal flows; 3) establish the viability of restoring levees for habitat values and benefits to At-risk species; 4) expand our understanding of

effects of restored tidal regimes on tidal marshland, and 5) establish adaptive management protocols and appropriate restoration strategies to couple with this approach.

Each of these goals are consistent with the apparent project design except for #2, which perhaps overstates the potential outcomes of the proposed work, which will actually monitor the outcomes of tidal restoration done by the Corps of Engineers, rather than actually creating new tidal restoration as a result of this funding. Perhaps just a minor point.

The objectives follow clearly and directly address the stated goals.

The proposed work is timely because it addresses monitoring of tidal restoration projects of the kind currently being proposed and carried out in other areas of the Delta under CalFed and other funding programs. Careful monitoring combined with well designed manipulations of restoration parameters will help advance the practice of tidal wetland restoration, increasing the effectiveness of future investments both in the study area, the rest of the delta and beyond.

2. **Justification.** Is the study justified relative to existing knowledge? Is a conceptual model clearly stated in the proposal and does it explain the underlying basis for the proposed work? Is the selection of research, pilot or demonstration project, or a full-scale implementation project justified?

   The study is justified relative to existing knowledge. We still know very little about the outcomes of tidal restoration projects in terms of both design and management. This is the result of inadequate resources being dedicated to monitoring in previous restoration efforts. Compounding this uncertatinty, project outcomes are likely to be heavily influenced by the specifics of location in the delta system and the physical configuration of the site relative to freshwater and tidal flows, the hydrology of the surrounding area (empounded or not) and recruitment sources for vegetation (principally native of non-native species). For these reasons, it is important to monitor each restoration site and plan to practice adaptive management if desired habitat goals are to be met, or understanding of project failures documented.

   The conceptual model is reasonably clear, although it was difficult to tell whether the mention of "additional restoration" with respect to the muted tidal regime meant more aggressive tidal restoration or referred to the need for the demonstration levee restoration.

   This project combines monitoring/research and a demonstration project "to maximize the information richness resulting from the proposed actions." Since the White Slough tidal restoration effort that the project is based upon will move forward regardless of whether this proposal is funded, the focus on monitoring and research of the outcomes of that major action is justified and appropriate.

3. **Approach.** Is the approach well designed and appropriate for meeting the objectives of the project? Are results likely to add to the base of knowledge? Is the project likely to generate novel information, methodology or approaches? Will the information ultimately be useful to decision-makers?

   The Approach for the monitoring program is remarkably detailed interms of the numbers of parameters that will be measured. The results will certainly add to the base of knowledge at the White Slough site, and as the site changes over time, results should have regional significance. The Demonstration project on the Srano Drive levee should generate novel information and provide qualitative results on the success of habitat restoration on modified levee structures. I cannot say whether the information will ultimately be useful to decision makers, but the Restoration plan developed in Phase II has the potential.

4. **Feasibility.** Is the approach fully documented and technically feasible? What is the likelihood of success? Is the scale of the project consistent with the objectives?

   I am satisfied that the project as described is technically feasible. The proposed monitoring, demonstration/research project and public education aspects probably have a high likelyhood of succes. I cannot say the same for the underlying muted-tidal prism restoration project, since highly engineered solutions rarely yield long term benefits commensurate with their original objectives. The scale of all the proposed work appears consistent with objectives. There are no fatal flaws.

5. **Project-Specific Performance Measures.** Does the project include appropriate performance measures to measure success relative to the project's goals and objectives? Is there enough detail as to how the performance measures will be quantified? For restoration projects, are monitoring plans explicit and detailed enough to determine if performance measures will be adequately assessed?

   The proposed work appears to have the appropriate performance measures built into the restoration and education components. There is enough detail in most aspects of the perfprmance measures, except I did not see it stated clearly which outcome would trigger adptive management actions directed at increasing the tidal prism or tidal flushing and/or reducing tidal flow rates by increasing the number of tidal inlets/control structures. This is an important point and the most likely cause of failure for the underlying restoration action. Other than that, the monitoring plans are explicit and detailed enough to determine if performance measures will be adequately assessed.

6. **Products.** Are products of value likely from the project? Specifically for restoration projects, are products of value also likely from the monitoring component? Are interpretative outcomes likely from the project?

   The proposal states that 5 technical reports and 2+ journal articles will result from the project along with annual presentations and a web site which should have benefit to others outside of the project area. The restoration site will have on the ground benefits from the demonstration project and interpretive educational facilities and programs. If one or more treatments in the retrofit are successful, this will constitute an advance in restoration technology.

7. **Capabilities.** What is the track record of applicants in terms of past projects? Is the project team qualified to efficiently and effectively implement the proposed project? Do they have available the infrastructure and other aspects of support necessary to accomplish the project?

   I am not familiar with the work of any of the applicant's. The project team appears qualified and capable of carrying out the project as described in the proposal, however Dr. Ohlemutz spelled his own name incorrectly in the heading of his descriptive paragraph. It also apppears that between the VSFCD, ESD, the USC laboratory of Dr. Bauer, and the equipment identified for purchase in the Budget section, the team will have the infrastructure and other aspects of support necessary to accomplish the project.

8. **Cost/Benefit Comments.** Is the budget reasonable and adequate for the work proposed?

   The budget is reasonable and adequate for the work proposed. The applicants have described an ambitious three year work plan which will require adequate funding. The budget of $669,929.00 seems appropriate given the level of detail the measurements and sampling intensity proposed here.

Miscellaneous comments:

None.

Environmental Compliance:

Proposal Number: 246

Applicant Organization: Vallejo Sanitation and Flood Control District

Proposal Title: WHITE SLOUGH RESTORATION

1. Are the legal or regulatory issues that affect the proposal identified adequately in the proposal?

   -Yes **X**No

   If no, please explain:

   There is no CESA compliance discussion in the proposal. A 2081 permit for incidental take of listed species may be required by CDFG.

2. Does the project's timeline and budget reflect adequate planning to address legal and regulatory issues that affect the proposal?

   XYes **-**No

   If no, please explain:

3. Do the legal and regulatory issues that affect the proposal significantly impair the project's feasibility?

   -Yes **X**No

   If yes, please explain:

Other Comments:

Budget:

Proposal Number: 246

Applicant Organization: Vallejo Sanitation and Flood Control District

Proposal Title: WHITE SLOUGH RESTORATION

1. Does the proposal include a detailed budget for each year of requested support?

   XYes **-**No

   If no, please explain:

2. Does the proposal include a detailed budget for each task identified?

   XYes **-**No

   If no, please explain:

3. Does the proposal clearly state the type of expenses encompassed in indirect rates or overhead costs?

   -Yes **X**No

   If no, please explain:

   budget justification and proposal indicate indirect costs are not applicable

4. Are appropriate project management costs clearly identified?

   XYes **-**No

   If no, please explain:

5. Do the total funds requested (Form I, Question 17A) equal the combined total annual costs in the budget summary?

   XYes **-**No

   If no, please explain (for example, are costs to be reimbursed by cost share funds included in the budget summary).

6. Does the budget justification adequately explain major expenses?

   XYes **-**No

If no, please explain:

7. Are there other budget issues that warrant consideration?

   -Yes **X**No

   If yes, please explain:

Other Comments: